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(71) Applicant  
Jeng-Chwen Chen  
No.2, Lane 54, To Yung Road, San Hsiao Chen,  
Taipet Haim, Taiwan

(72) Inventor  
Jeng-Chwen Chen

(74) Agent and/or Address for Service  
Boult Wade & Tennant  
27 Funnival Street, London, EC4A 1PD,  
United Kingdom

(51) INT CL<sup>3</sup>  
A63H 33/08

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(55) Documents cited  
GB 1207290 A

(58) Field of search  
UK CL (Edition K) A6S  
INT CL<sup>3</sup> A63H 33/06 33/08

(54) Toy construction panels

(57) Toy building panels each have mortise and tenon formations round their periphery and holes through their thickness, the spacing of the holes corresponding to that of the tenons. Two such panels can thus be joined edge-to-edge or with some of the tenons 11 of one extending into the holes 12 of the other.

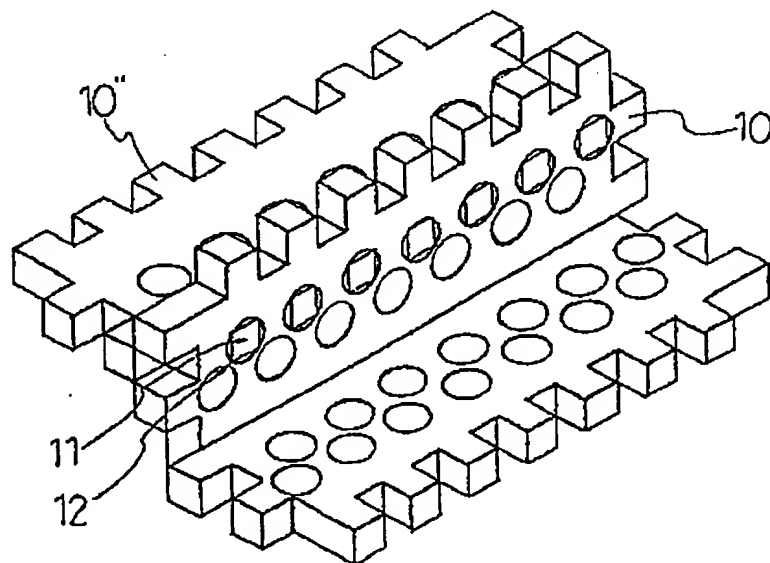


FIG. 5C

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

GB 2 252 056 A

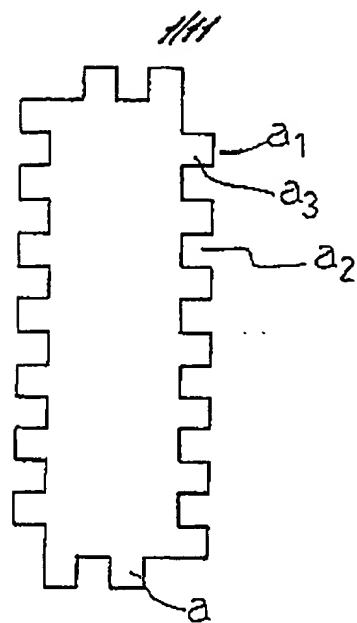


FIG. 1 PRIOR ART

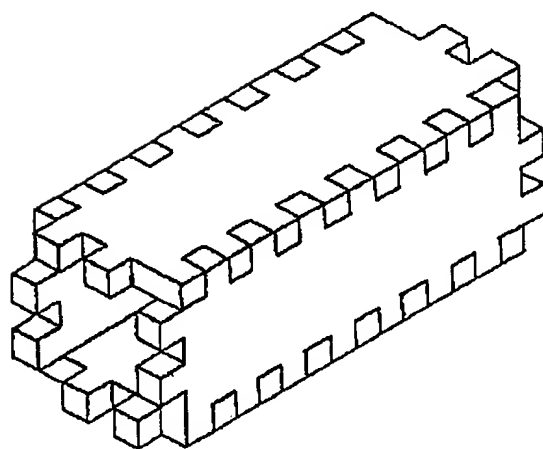


FIG. 2 PRIOR ART

2/11

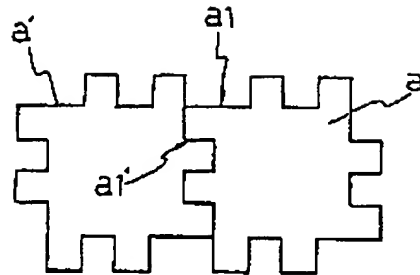


FIG. 3 PRIOR ART

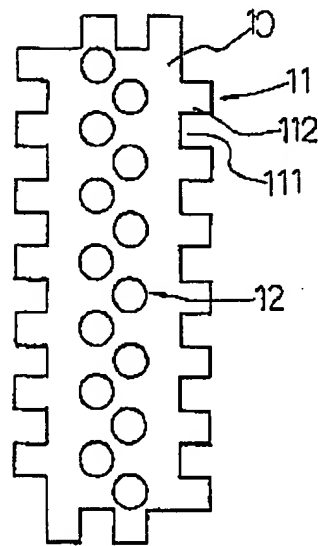


FIG. 4

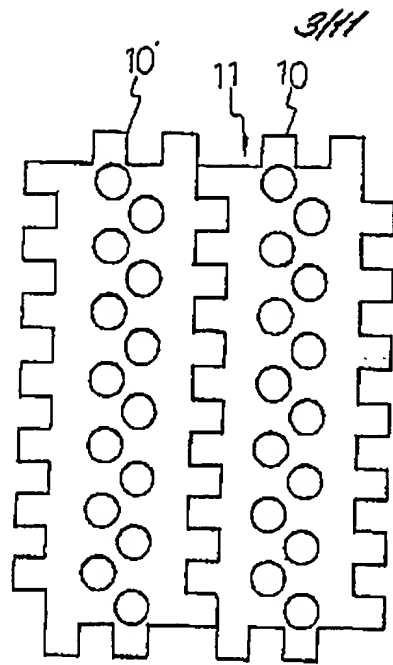


FIG. 5A

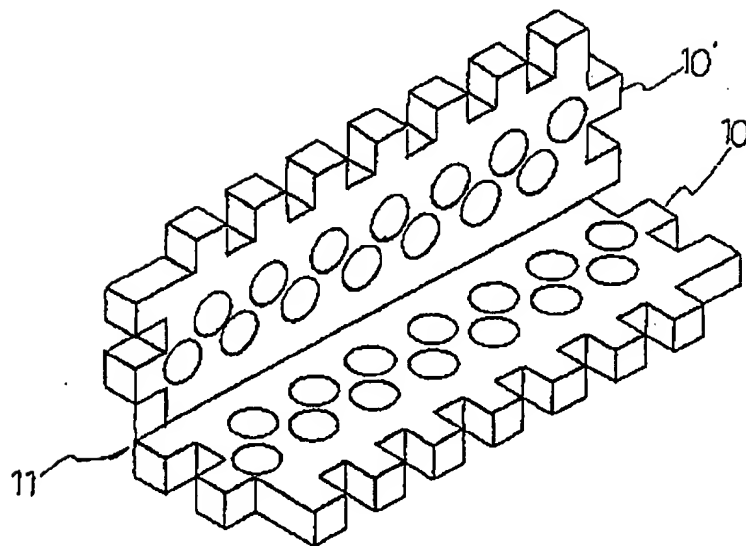


FIG. 5B

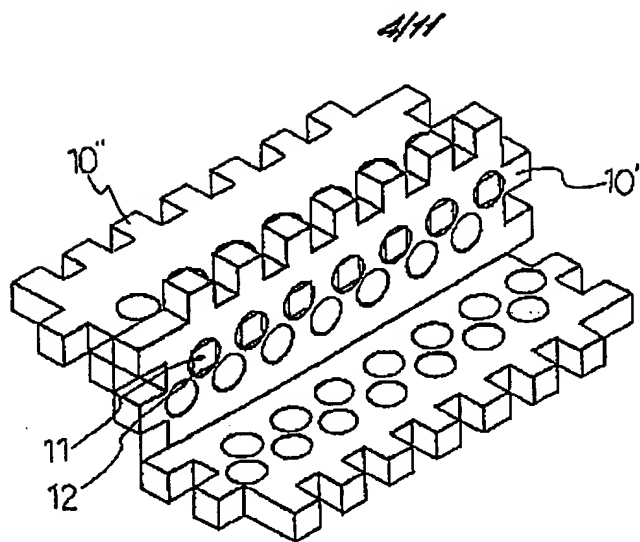


FIG. 5C

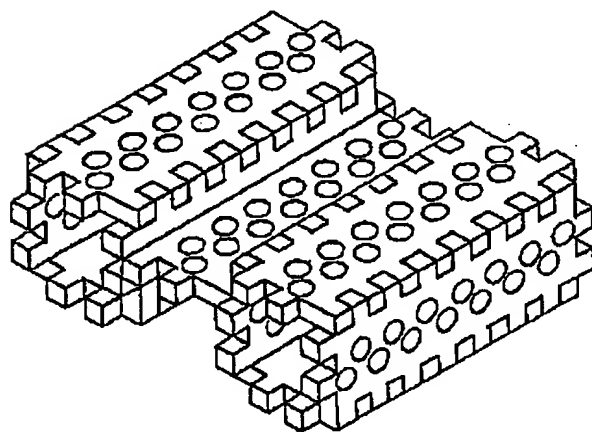


FIG. 5D

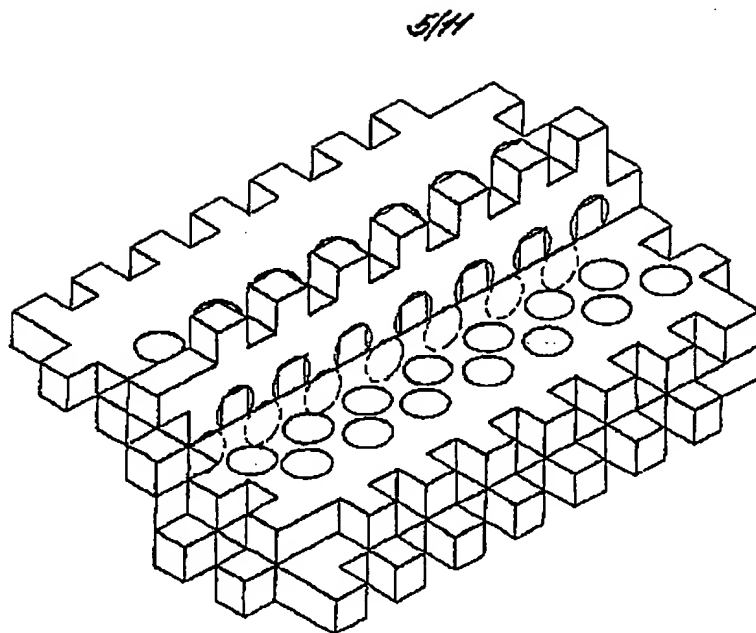


FIG. 5E

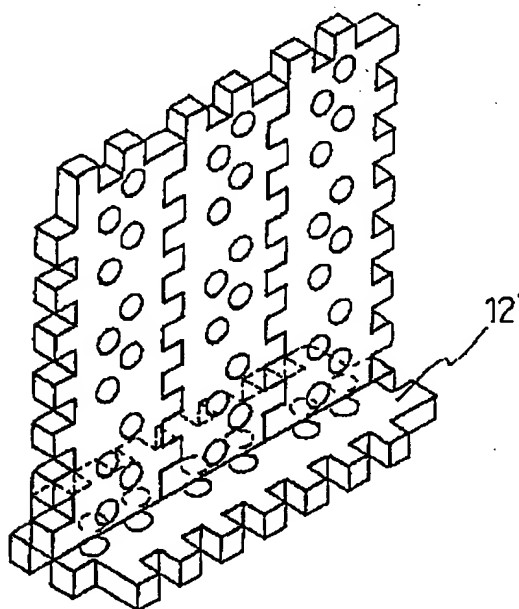


FIG. 6

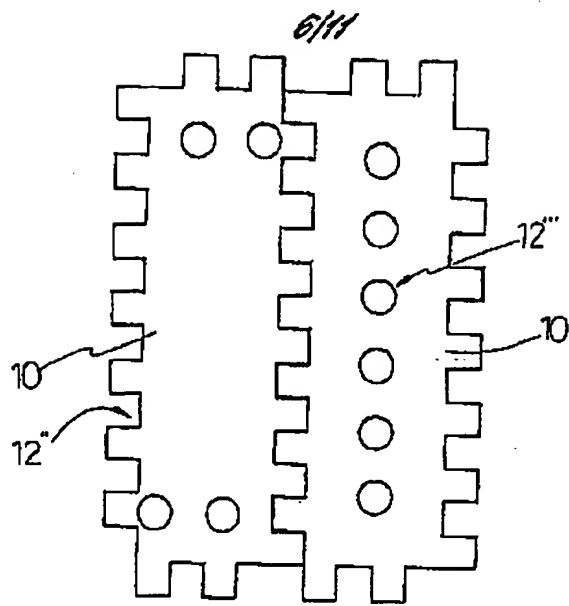


FIG. 7

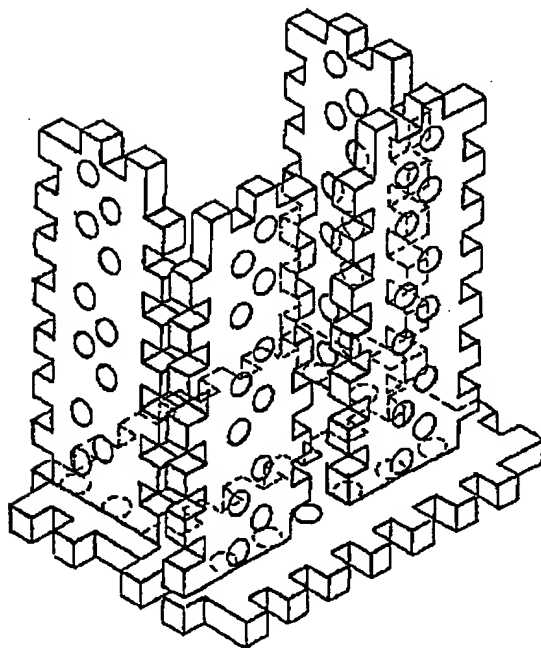


FIG. 7A



7/11

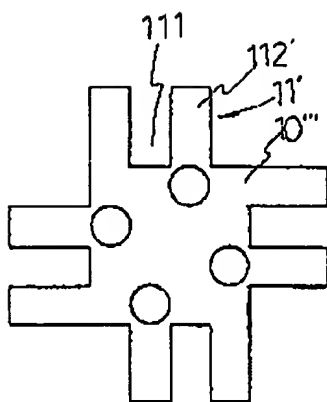


FIG.8

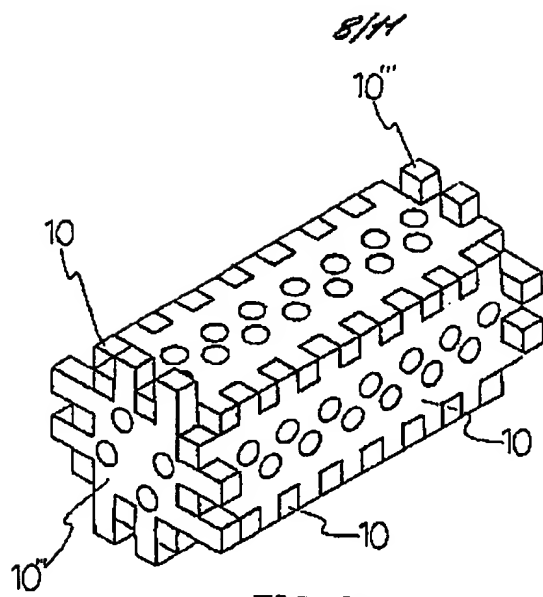


FIG. 8A

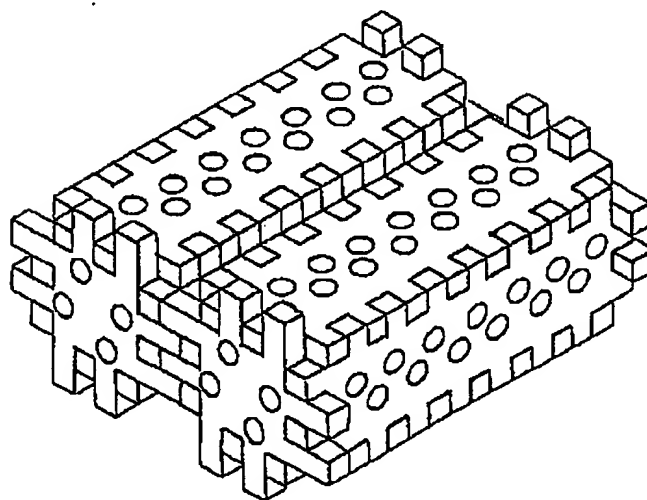


FIG. 8B

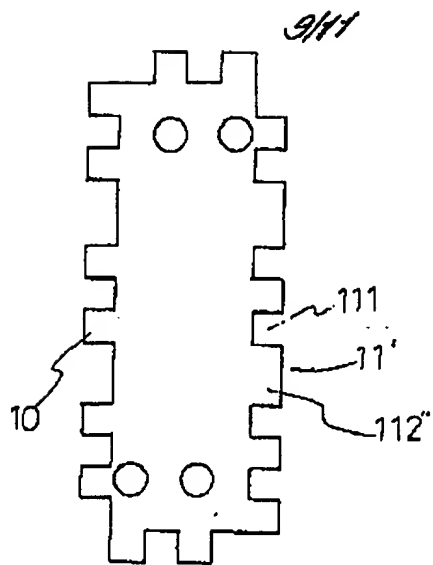


FIG. 9

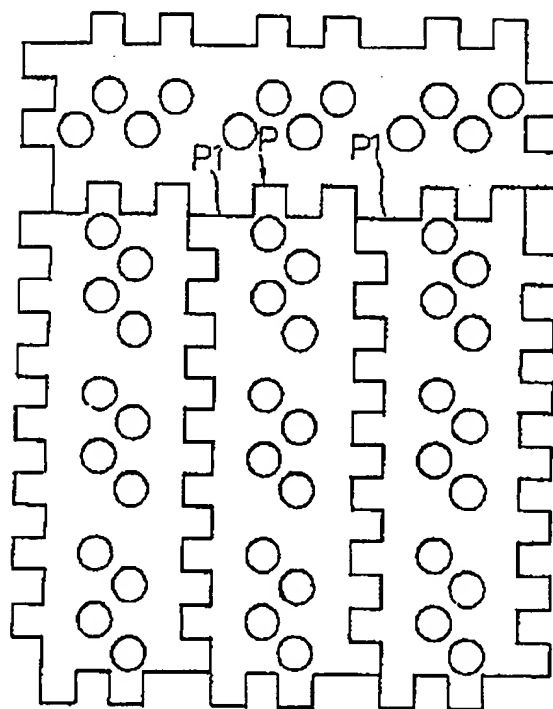


FIG. 9A

10/11

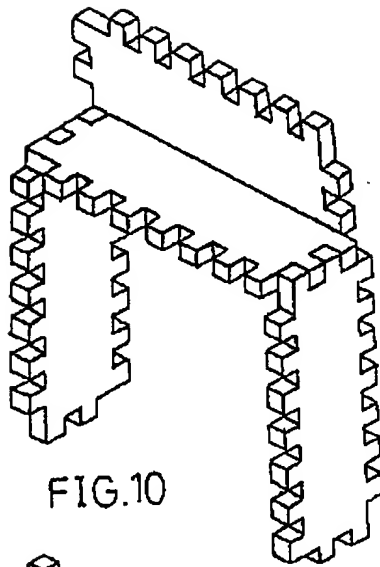


FIG. 10

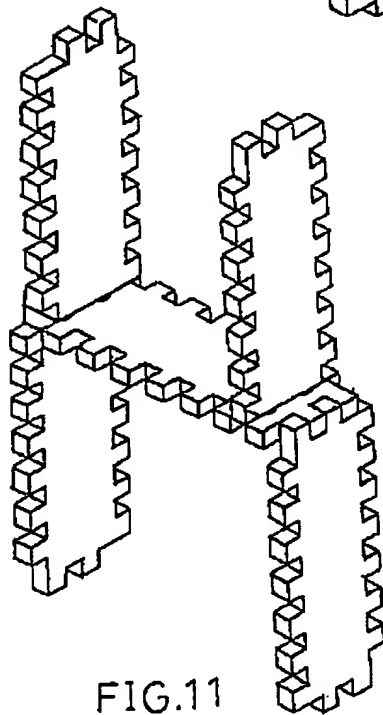


FIG. 11

11/11

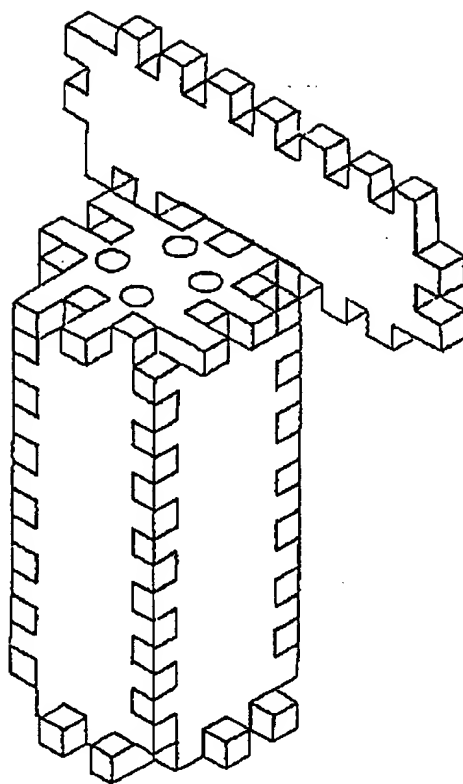


FIG. 12

- 1 -

TOY BRICKS

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10           The present invention relates to a kind of flat  
toy bricks with specially designed built-up structure,  
and more particularly to a kind of flat toy bricks on  
their two surfaces and around their periphery a  
plurality of mortises and tenons are provided  
15           respectively to permit the toy bricks to engage with one  
another without limits and consequently, a lot of fun  
and added value can be found in such toy bricks.

          Following the continuous advances of technologies  
in busy modern life, people experience more and more  
20           tension and boredom everyday, most people lack adequate  
recreation to spiritually relieve their daily life. As  
a result, anxiety and violence are always found in our  
society. Therefore, it is tried by the applicant to  
develop the present invention to provide some amusements  
25           in our daily life and thereby eliminates the violence

found almost everywhere.

Even in such an unpeaceful society, many people, including the aged, love to play some kinds of educational toys, such as intellectual building blocks, flat built-up bricks, etc., which are educational-effective, and are convenient and safe even to children. A common built-up brick is shown in Fig. 1, which generally has a periphery formed with corresponding tenons "a3" and recesses "a2" together constituting the engaging portion "a1" of the brick "a". With these tenons "a3" and recesses "a2", the toy bricks "a" may engage with one another. However, the conventionally designed engaging portion on such built-up toy bricks usually limits the combination and engagement of such toy bricks because (1) each recess "a2" of the engaging portion "a1" can receive just one tenon "a3" of another toy brick "a" (so that the two toy bricks can firmly join with each other), and consequently, after a cube/cuboid is formed as shown in Fig. 2, other toy bricks can not be further engaged to toy bricks which have been adjacently joined previously, and (2) the toy bricks which have been engaged parallelly as shown in Fig. 3 would not permit another engagement with other toy bricks in normal direction. Therefore, only limited combinations can be achieved from the conventionally

designed built-up bricks, that is, the conventional built-up bricks have limited intellectual effectiveness and consequently, less fun and less popularity, especially among children.

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It is therefore a primary object of the present invention to provide a kind of toy brick which shows multiple design functions and provides various interesting combinations.

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It is a further object of the present invention to provide a kind of built-up toy brick which is creative in its design and is cost-effective so that most children can enjoy it safely, and easily, and be benefited by its educational characteristics.

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The present invention basically includes flat toy bricks each of which has corresponding mortises and tenons on the two surfaces and around the periphery respectively to facilitate the engaging of the toy bricks. With such structure, each toy brick can join

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others by engaging its tenons or mortises with that on other toy bricks, thereby various kinds of combination can be made to provide a lot of fun while the value of such toy bricks is much increased.

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The present invention can be best understood through the following description and accompanying drawings wherein:

FIG. 1 shows a common built-up toy brick;

15 FIG. 2 shows the way by which common built-up toy bricks are assembled to form something;

FIG. 3 shows another way by which common built-up toy bricks are assembled;

20 FIG. 4 shows the specially designed built-up toy brick of the present invention;

FIGS. 5A, 5B, 5C, 5D and 5E show different combinations of the present invention;

FIG. 6 shows another embodiment of the present invention;

25 FIG. 7 and 7A show still another embodiment of the present invention;

FIGS. 8, 8A and 8B show still another embodiment of the present invention; and

FIG. 9 and 9A show still another embodiment of the present invention.

5 FIG. 10, 11 and 12 show still another embodiment of the present invention.

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Firstly, please refer to Fig. 4. the flat toy brick of the present invention substantially has a body 10 which is freely designed in its shape and size but has an engaging portion 11 formed around its periphery and a plurality of mortises 12 formed on its two surfaces.

20 The shape and the arrangement of these engaging portion 11 and mortises 12 do not have particular limitation.

Please refer to Fig. 4 again. the engaging portion 11 around the brick body 10 includes a plurality sets of adequately and correspondingly arranged tenons 112 and recesses 111. the mortises 12 are formed at adequate positions on two surfaces of the body 10 so as to separately correspond to a tenon 112 or a recess 111.

As shown in Fig. 4, the mortises 12 are holes in an adequate size and at adequate interval suitable for receiving tenons 112 on other toy bricks. The mortises 12 in Fig. 4 are disposed in two rows. Figs. 5A, 5B, and 5C show the engagement or the combination of the flat built-up toy bricks of the present invention:

(1) In Fig. 5A, a toy brick body 10 is engaged with a toy brick body 10' in a parallel direction by engaging their engaging portions 11.

(2) In Fig. 5B, a toy brick body 10 is engaged with a toy brick body 10' to form a L shape by engaging their engaging portions in a normal direction.

(3) In Fig. 5C, the engaging portion 11 of a third toy brick body 10" is received by the mortises 12 of the toy brick body 10' as shown in Fig. 5B and forms another combination.

Similarly, various combinations of the toy bricks of the present invention can be achieved by the above-mentioned engagement. For example, Fig. 5D shows two cuboids formed with the flat built-up toy bricks are further connected with a piece of similar toy brick. In Fig. 5E, another different combination of the toy bricks is shown.

Please refer to Fig. 6. The mortises 12' on the toy brick body 10 are arranged pair by pair at equal

interval. With this arrangement, different combination can be achieved.

5 Please refer to Fig. 7, the mortises 12" on the toy brick body 10 are formed only at the two far ends, and the mortises 12" on another toy brick body 10 are  
equally spaced and located at the center line of the body 10. With these different arrangements of mortises 12, another different assembly of the toy bricks is shown in Fig. 7A.

10 Please refer to Fig. 8. A toy brick 10'" shorter in length but having longer tenons 112' for its engaging portion 11'. Please see Fig. 8A while referring to Fig. 4, after four pieces of longer toy brick bodies 10 are assembled to form a cuboid by engaging their engaging  
15 portions 11, two pieces of shorter toy brick bodies 10'" are used to cover the two ends of the formed cuboid so that the latter becomes a closed cuboid. The longer tenons 112' can connect multiple closed cuboids as shown in Fig. 8B.

20 Now, please refer to Fig. 9, some of the adequate tenons 112" and their corresponding recesses 111" of the toy brick bodies are designed to be wider than others. The width and the positions of such wider tenons 112" and wider recesses 111" may suitably engage with the end  
25 line of three pieces of parallelly connected toy brick

bodies 10 having equal-width tenons 112 and recesses 111. As shown in Fig. 9A, P1 indicates the line where a wider tenon 112" engages with a wider recess 111", and P indicates a line where a standard width tenon 112 engages with a standard width recess 111.

Since the flat built-up toy bricks of the present invention allow different shapes (longer or shorter in length), different tenon and recess widths for the engaging portion, and different arrangements of the mortises 12, numerous types of combination, engagement, connection, and assembly are available depending on the free choice of users. Fun obtained from such changeable arrangements and combinations are also a heuristic education to children, especially to those preschool children.

The flat built-up toy bricks of the present invention may be made of safe and elastic material to facilitate the engagement, storage, and carriage of the toy bricks. With these advantages which can not be found in the conventional toy bricks or built-up blocks, the value of such specially designed toy bricks is highly increased.

While specific embodiments of the invention have been shown and described in detail to illustrate the application of the principles of the invention, it will

- 9 -

be understood that the invention may be embodied  
otherwise without departing from such principles.

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CLAIMS:

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1. A kind of flat toy bricks with specially designed built-up structure, each of said flat toy bricks comprising:

- 10       - a flat toy brick body which has an engaging portion around its periphery and multiple sets of mortises formed on its two surfaces;
- said engaging portion consisting of multiple tenons and recesses corresponding to said tenons;
- 15       - said mortises being located at positions corresponding to said tenons and said recesses of said engaging portion;
- said mortises, tenons, and recesses being arranged in such a manner that unlimited pieces of said flat toy brick may be freely engaged, combined, joined, and  
20       assembled to form various shapes and provide so much fun that the value of said flat toy bricks is much increased.

25       2. A kind of flat toy bricks with specially designed built-up structure as claimed in claim 1 wherein said engaging portion may have various design without

specific limitation in the shape of said tenons and their corresponding recesses.

- 5           3. A kind of flat toy bricks with specially designed built-up structure as claimed in claim 1 wherein said mortises may have various design without specific limitation in the shape.
4. A kind of flat toy bricks substantially as hereinbefore described with reference to and as shown in Figs. 4 to 12 of the accompanying drawings.

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**Patents Act 1977**  
**Examiner's report to the Comptroller under**  
**Section 17 (The Search Report)**

Application number 9101668.3

**Relevant Technical fields**

- (i) UK CI (Edition K ) A6S
- (ii) Int CI (Edition 5 ) A63H 33/06 33/08

**Search Examiner**

E W Bannister

**Databases (see over)**

(i) UK Patent Office

**Date of Search**

5 March 1991

(ii)

Documents considered relevant following a search in respect of claims

1-4

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 1207290 A (BOTTA) Whole document, especially figures 4 and 5	1-3 at least

SF2(p)

H78AAD

Category	Identity of document and relevant passages	Relevant to claim(s)

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